List of Contents

NUMBER 1

OPTIMIZATION OF STOCHASTIC SYSTEMS WITH APPLICATIONS IN COMPUTER SCIENCE

M. Arató, A. Bagchi and **I. Fazekas** — vii Preface

N. M. Arató — 1 Quadratic functionals of generalized Gaussian random fields

A. Bagchi — 9 Boundary value processes: estimation and identification

J. Bokor, M. Tanyi and **Gy. Terdik** — 21 Forward and backward Markovian state space models of second order process

A. Ya. Dorogovtsev — 31 Necessary and sufficient conditions for existence of stationary and periodic solutions of a stochastic difference equation in Hilbert space

S. N. Dubonos, B. N. Galfullin and **N. G. Ushakov** — 39 Statistical image restoration

I. Gyöngy — 47 The approximation of stochastic partial differential equations and applications in nonlinear filtering

I. Gyöngy and **T. Pröhle** — 65 On the approximation of stochastic differential equation and on Stroock–Varadhan's support theorem

A. Halilov — 71 Asymptotic normality of lag window estimates

J. Kormos — 75 Hypothesis testing for nearly nonstationary autoregressive models

V. S. Koroljuk — 83 Central limit theorem for semi-Markov random evolutions

R. E. Koukhaleishvili — 89 Asymptotic distribution of the quadratic deviation of the regression curve recursive estimator

I. Kun — 97 Iteration convergence speed estimation using the LIL

N. N. Leonenko — 101 Sojourns of multidimensional Gaussian random fields with dependent components

G. K. Mishkoy — 109 Priority queueing involving orientation and the problems of their software implementation

Gy. Pap, J. Bokor and **P. Gáspár** 115 Analysis of multiple model method for change detection of AR processes

A. L. Poguda and **E. K. Shpilewski** 123 Dynamical methods for random processes recognition

N. A. Ruževič 133 Limit properties of functionals on irregular semi-Markovian processes

S. Solntsev 141 On almost sure stability of the solutions of stochastic recurrent equations

J. Sztrik and **T. Gál** 143 A queueing model for a terminal system subject to breakdowns

K. Yoshihara 149 Conditional empirical processes defined by Φ-mixing sequences

I Softstrip® data strip containing the table of contents of this issue

NUMBER 2

iii Softstrip® data strip containing the table of contents of this issue

T. C. E. Cheng 1 Dynamic programming approach to the single-machine sequencing problem with different due-dates

A. Kharab 9 A Poiseuille flow past a permeable hill

G. K. Kulev and **D. D. Bainov** 17 Global stability of sets for impulsive differential systems by Lyapunov's direct method

T. Z. Kalamboukis 29 Tridiagonalization of band symmetric matrices for vector computers

M. J. Casper and **D. A. Voss** 35 L_0-Stable split linear multistep formulas for parabolic PDEs

H. J. Rojo, P. L. Huerta, J. B. Rojo and **F. Zamorano** 47 Polynomial basis functions for curved elements using hyperbolas

R. K. Sharma 55 Numerical analysis of a quasi linear differential equation with weak diffusion

P. J. Szabłowski 61 Elliptically contoured random variables and their application to the extension of the Kalman filter

S. H. Bakry 73 A new method for computing Erlang-B formula

A. K. Mitra 75 Minimal Boolean sum-of-product forms in PROLOG

H. Zedan 83 Avoiding the exactness of the Jacobian matrix in Rosenbrock formulae

D. Greenspan 91 Conservative difference formulations of Calogero and Toda Hamiltonian systems

E. R. Kouyoumdjian 97 Errata to "A set theoretic approach to the symmetry analysis of hexadecahedrane"

99 Book Reports

I *Software Survey Section*

NUMBER 3

MATHEMATICS AND THE MICROCOMPUTER II

B. A. Fusaro vii Introduction

D. C. Arney and **B. T. Robinson** 1 Exhibiting chaos and fractals with a microcomputer

S. Breuer, J. Gal-Ezer and **G. Zwas** 13 Microcomputer laboratories in mathematics education

R. Bronson and **C. Jacobsen** 35 Modeling the dynamics of social systems

L. C. Leinbach 43 Computer algebra and the microcomputer

S. S. Wagstaff Jr 53 Some uses of microcomputers in number theory research

I Softstrip® data strip containing the table of contents of this issue

NUMBER 4

iii Softstrip® data strip containing the table of contents of this issue

R. K. Sharma and **P. Majumdar** 1 High speed numerical technique to solve coupled moving boundary value heat problems

A. B. Shamardan 9 Central finite difference schemes for nonlinear dispersive waves

B. Pourbabai 17 An assembly cell with an automated quality control station. Exponentially distributed processing times

F. A. Milner 31 A numerical method for a model of population dynamics with spatial diffusion

A. H. A. Ahmed 45 Asymptotic properties of collocation projection norms

R. S. Bucy, M. K. Namiri and **J. R. Velman** 51 Minimax control

Z. Chen 65 Hybrid variable finite elements for semiconductor devices

E. H. Doha 75 An accurate solution of parabolic equations by expansion in ultraspherical polynomials

B. Li, A. G. Law, H. Raafat, P. H. Nguyen and **Y.-F. Yan** 89 Eigenvalues of tridiagonal matrices: an alternative to Givens' method

95 Book Reports

I *Software Survey Section*

NUMBER 5

iii Softstrip® data strip containing the table of contents of this issue

F. Feuillebois 1 Precise calculation of numerical derivatives using Lagrange and Hermite interpolation

R. J. Li and **E. S. Lee** 13 Multi-criteria *de Novo* programming with fuzzy parameters

C. Chiccoli, S. Lorenzutta and **G. Maino** 21 Recent results for generalized exponential integrals

R. Souidi 31 A new sequential test for detection of a point of change in ARMA parameters

N. Budinsky and **A. A. Ungar** 41 Electromagnetic head waves

S. W. Armfield and **C. A. J. Fletcher** 55 Symbolic analysis of reduced forms of the Navier–Stokes equations

A. H. Khater, A. E. El-Sharif and **N. A. Hussien** 67 Analytical solutions of the Rayleigh flow problem for one component charged rarefied gas

P. J. Szabłowski 75 Expansions of $E(X|Y+\epsilon X)$ and their applications to the analysis of elliptically contoured measures

S. K. Roy Choudhuri and **G. Chatterjee Roy** 85 Temperature-rate dependent magneto-thermoelastic waves in a finitely conducting elastic half-space

N. K. Jha 95 A new class of symmetric error correcting/unidirectional error detecting codes

I *Software Survey Section*

NUMBER 6

iii Softstrip® data strip containing the table of contents of this issue

R. R. Joshi	1	An intelligent system for DNA repair
T. Altman	9	Application of contractor directions for solving systems of nonlinear equations
D. A. Murio and **L. Guo**	15	Discrete stability analysis of the mollification method for numerical differentiation
J. M. Wolff and **S. Fleeter**	27	Viscous unsteady gust aerodynamics of a flat plate airfoil by a locally analytical method
B. P. Sommeijer	37	Increasing the real stability boundary of explicit methods
W. Page	51	Computer algebra systems: issues and inquiries
A. Babakahani and **R. S. Dahiya**	71	Iterative Laplace transforms of two variables
	95	Book Reports
	I	*Software Survey Section*

NUMBER 7

	iii	Softstrip® data strip containing the table of contents of this issue
R. W. Brankin and **I. Gladwell**	1	Codes for almost block diagonal systems
J. H. Hanson, **A. C. Benander** and **B. A. Benander**	7	The computer generated symbolic solution of a system of linear first order differential equations
W. A. Chren Jr	13	A new residue number system division algorithm
C. S. McCahon and **E. S. Lee**	31	Job sequencing with fuzzy processing times
T. Nanda	43	An interactive method for the eigenvalue problem for matrices
B. Pourbabai	53	Approximation of the overflow process of a *D/G/K* loss system
P. Liebermann and **R. Liebermann**	59	Symmetry in question and answer sequences in music
A. B. Shamardan	67	The numerical treatment of the nonlinear Schrödinger equation
L. Guo, D. A. Murio and **C. Roth**	75	A mollified space marching finite differences algorithm for the inverse heat conduction problem with slab symmetry
D. Greenspan	91	Supercomputer simulation of colliding microdrops of water
	99	Book Reports
	I	*Software Survey Section*

NUMBER 8/9

ADVANCES IN PARTIAL DIFFERENTIAL EQUATIONS

vii Dedication

S. K. Dey ix Foreword

G. A. Sod 1 A random choice method for the Stefan problem

C. I. Goldstein 11 Preconditioned iterative methods for convection diffusion and related boundary value problems

Z. U. A. Warsi and **J. F. Thompson** 31 Application of variational methods in the fixed and adaptive grid generation

P. Szmolyan 43 Initial transients of solutions of the semiconductor device equations

R. Vichnevetsky 59 A quantum-like theory of wave propagation in periodic structures

K. R. Kurkal and **S. S. Munukutla** 77 Computational study of an unsteady heat transfer problem related to high power lasers

L. Sakell 85 Use of local time stepping with full pseudospectral solutions to the Navier–Stokes equations of motion for flows with shock waves

T. V. Kostova 95 Numerical solutions to equations modelling nonlinearly interacting age-dependent populations

T. Mazumdar 105 Existence of solution of the operator equation $AX - XB = Q$ with possibly unbounded A, B, Q

J. F. Glazebrook 117 Strings, harmonic maps and hyperbolic systems

E. J. Kansa 127 Multiquadrics—a scattered data approximation scheme with applications to computational fluid-dynamics—I. Surface approximations and partial derivative estimates

E. J. Kansa 147 Multiquadrics—a scattered data approximation scheme with applications to computational fluid-dynamics—II. Solutions to parabolic, hyperbolic and elliptic partial differential equations

R. L. Hardy 163 Theory and applications of the multiquadric–biharmonic method. 20 years of discovery 1968–1988

I Softstrip® data strip containing the table of contents of this issue

NUMBER 10

iii Softstrip® data strip containing the table of contents of this issue

B. Codenotti and **M. Leoncini** 1 Parallelism and fast solution of linear systems

Ch. G. Makridakis 19 Cosine methods for a class of semilinear second-order wave equations

D. A. Murio and **L. Guo** 35 A stable space marching finite differences algorithm for the inverse heat conduction problem with no initial filtering procedure

M.-Z. Qin and **M.-Q. Zhang** 51 Multi-stage symplectic schemes of two kinds of Hamiltonian systems for wave equations

P. A. Ramachandran 63 A boundary element method based solution procedure for non-linear boundary value problems

A. Lanza and **M. R. Dubal** 77 An application of the multi-grid method to the construction of initial data for Brill waves

D. Y. Kwak, U. J. Choi and **S. H. Bae** 87 An algebraic geometric method to calculate branches near a bifurcation point

P. Baldi and **E. C. Posner** 91 Graph coloring bounds for cellular radio

99 Book Reports

I *Software Survey Section*

III *Announcements*

NUMBER 11

EXTENSIONS TO THE MATHEMATICS OF SYSTEMS AND COMPUTATIONS

Additional Contributions to the Second Bellman Continuum

A. O. Esogbue 1 Reflections on the contributions to the Second Bellman Continuum

A. O. Esogbue and **C. W. Ahn** 3 Computational experiments with a class of dynamic programming algorithms of higher dimensions

M. J. Beckmann 25 Dynamic programming and the secretary problem

E. G. Read and **J. A. George** 29 Dual dynamic programming for linear production/inventory systems

N. Kalo and **S. Osaki** 43 Optimal ordering policies with two types of randomized lead times

F. A. Al-Khayyal 53 Jointly constrained bilinear programs and related problems: an overview

J. A. Ramos 63 A Kalman-tracking filter approach to nonlinear programming

A. P. Wang 75 Invariant imbedding and nonpredictive operators

P. K. Misra and **E. S. Lee** 81 Optimal estimation in stream quality modeling

D. R. Cutler and **I. L. Reilly** 97 A comparison of some Hausdorff notions in fuzzy topological spaces

J. F. Baldwin 105 Computational models of uncertainty reasoning in expert systems

S. Kim, S. M. Meerkov and **T. Runolfsson** 121 Residence probability control

N. G. Medhin 127 Minimizing sequences for differential inclusion problems in the presence of state constraints

P. A. Ruymgaart and **T. T. Soong** 135 An integral equation in systems theory

G. O. Ọlaọfẹ 141 Quadrature solution of singular integral equations—I. A uniform treatment of Fredholm and Volterra equations

G. Birkhoff, E. C. Gartland Jr and **R. E. Lynch** 147 Difference methods for solving convection–diffusion equations

I Softstrip® data strip containing the table of contents of this issue

NUMBER 12

iii Softstrip® data strip containing the table of contents of this issue

T.-W. Hwang and **C.-A. Wang** 1 Existence and classification of solutions for a problem of surface-tension driven flows in a slot with an insulated bottom

G. Adomian and **R. Rach** 9 Equality of partial solutions in the decomposition method for linear or nonlinear partial differential equations

P. Góra and **A. Boyarsky** 13 Higher-dimensional point transformations and asymptotic measures for cellular automata

A. A. Ungar 33 A unified approach for solving quadratic, cubic and quartic equations by radicals

R. W. Lardner 41 Stability of the numerical solution of a parabolic system with integral subsidiary conditions

M. M. Chawla, M. K. Jain and **R. Subramanian** 47 The application of explicit Nyström methods to singular second order differential equations

P. Powell and **H. C. Lau** 53 Branch distance optimization of structured programs

T. Altman 65 A method of inexact steepest descent for systems of linear equations

A. van Niekerk and **F. D. van Niekerk** 71 An explicit finite element method for convection–diffusion equations using rational basis functions

K. H. Wong and **K. L. Teo** 79 An exact penalty function algorithm for time-lag control problems with control and terminal equality constraints

95 Book Reports

I *Software Survey Section*